GENERIC CHARACTERISTICS OF AONIDIELLA BERLESE AND LEONARDI, AND A DESCRIPTION OF A NEW SPECIES FROM AUSTRALIA (HOMOPTERA-DIASPIDIDÆ)[1]

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Aonidiella has for many years been accepted by the Italian coccidologists as a valid genus. In 1921 MacGillivary (3)[2] apparently concurred, although it was not until 1933 that Nel (5) stressed this point to the extent that the name was at least partially accepted by American entomologists. The genus is important because the California red scale, *Aonidiella aurantii* (Mask.) is the type species. As early as 1899 Cockerell (2) placed *Aonidiella* as a sub-genus of *Chrysomphalus*, although he gave no reason for this change. Since then economic workers have consistently placed *aurantii* in the genus *Chrysomphalus*.

Although there has been much argument about the genus *Aonidiella*, apparently no attempt has been made to define it. In the original description of this genus in 1895 by Berlese and Leonardi (1), mention was made of the kidney-shaped body. The almost circular enlargement and sclerotization of the body of the adult female at maturity does seem to be fairly characteristic. This character alone would tend to separate it from *Chrysomphalus* where the pygidium is never so strongly retracted into the body. The paraphyses of the *Aonidiella* species are, in all cases examined, very short, slender, and small as compared with the more pronounced type of paraphyses in *Chrysomphalus*. The absence of the perivulvar pores was considered of importance for many years, and, as a matter of fact, if the species lacked these structures, they were usually assigned to *Aonidiella*, regardless of any other character. However, in view of the fact that *Aonidiella comperei* McKenzie and the new species described in this report, as well as *Aonidiella orientalis* (Newstead), all possess perivulvar pores, very little importance can be given this structure as a generic character. The epiphysis or outgrowth upon the margin of the pygidium just beyond the

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[2] Numbers in parentheses indicate references at end of article.

third pair of lobes is usually very well developed. The presence of the fenestrations (window-like structures) on the body just above the pygidium (as is recognized in *comperei*, the new species described in this report, and occasionally present in a few individuals of *taxus*) may be of some importance in distinguishing species, but apparently is not of generic significance. The tubular ducts are long, slender, and usually very broad, especially those feeding the gland openings situated near the median lobes. In every species of *Aonidiella* examined, with the exception of *orientalis*, the body of the mature female is intimately associated with the scale covering.

Aonidiella eremocitri McKenzie, n. sp.

This species was collected by S. E. Flanders of this Station, while he was exploring for parasites of the citricola scale, *Coccus pseudomagnolarium* (Kuwana), in Australia, in 1931. The description was made from 12 stained specimens mounted on one slide and three scales glued to the side of the coverglass. This represented the only specimens of this species. No male scales were present. The stained specimens were removed and placed two on each slide.

Type. From *Eremocitrus glauca*, Marmor, Queensland, Australia.

Habitat. Occurring on the leaves, twigs, and larger branches.

Scale of female smooth, circular, flat, yellow, hard, and brittle, 1½ to 1¾ mm. in diameter. Male scale not identified. Apparently all species of *Aonidiella* thus far known, however, do have male scales of the typical elongate type.

Morphological characteristics: Adult female, when mounted, about 1 mm. in diameter and of the typical reniform shape. Body heavily sclerotized. Pygidium (fig. 1) not heavily sclerotized. Three pair of lobes (trullæ) present, the median pair only slightly larger than the second and third pairs. The second and third pair of lobes approximately the same size. Paraphyses small, short, slender, arranged as follows: One at the inner basal angle of median pair of lobes; one almost directly above the first plate beyond the median lobes; one at each basal angle of the second pair of lobes, the inner longer; one directly above the first plate beyond the second pair of lobes; and one at each basal angle at the third pair of lobes, the inner the longer. There are two serrate plates between the median lobes; two between the median and second lobes, both of which are cleft; two between the sec-

ond and third lobes, the inner plate of which is deeply cleft; and three beyond the third lobe, all of which are deeply cleft and quite sharply dentate. Epiphysis beyond the last three plates well developed and conspicuous. Spines on pygidial fringe situated as shown in figure 1. Dorsal wax gland openings large and arranged in three rather definite rows on each side of the pygidium. Tubular ducts broad and conspicuous. Anal opening large, slightly cephalad, of the median paraphyses. Ventral side with a few small ducts situated close to the margin of the pygidium. Vaginal opening near the center of the pygidium. Perivulvar pores present in four groups, of apparently not more than three pores, usually two, to each group. Spines on the venter situated as shown in figure 1. Six square fenestrations situated dorsally on the body just above the pygidium, usually conspicuous (see fig. 1, E).

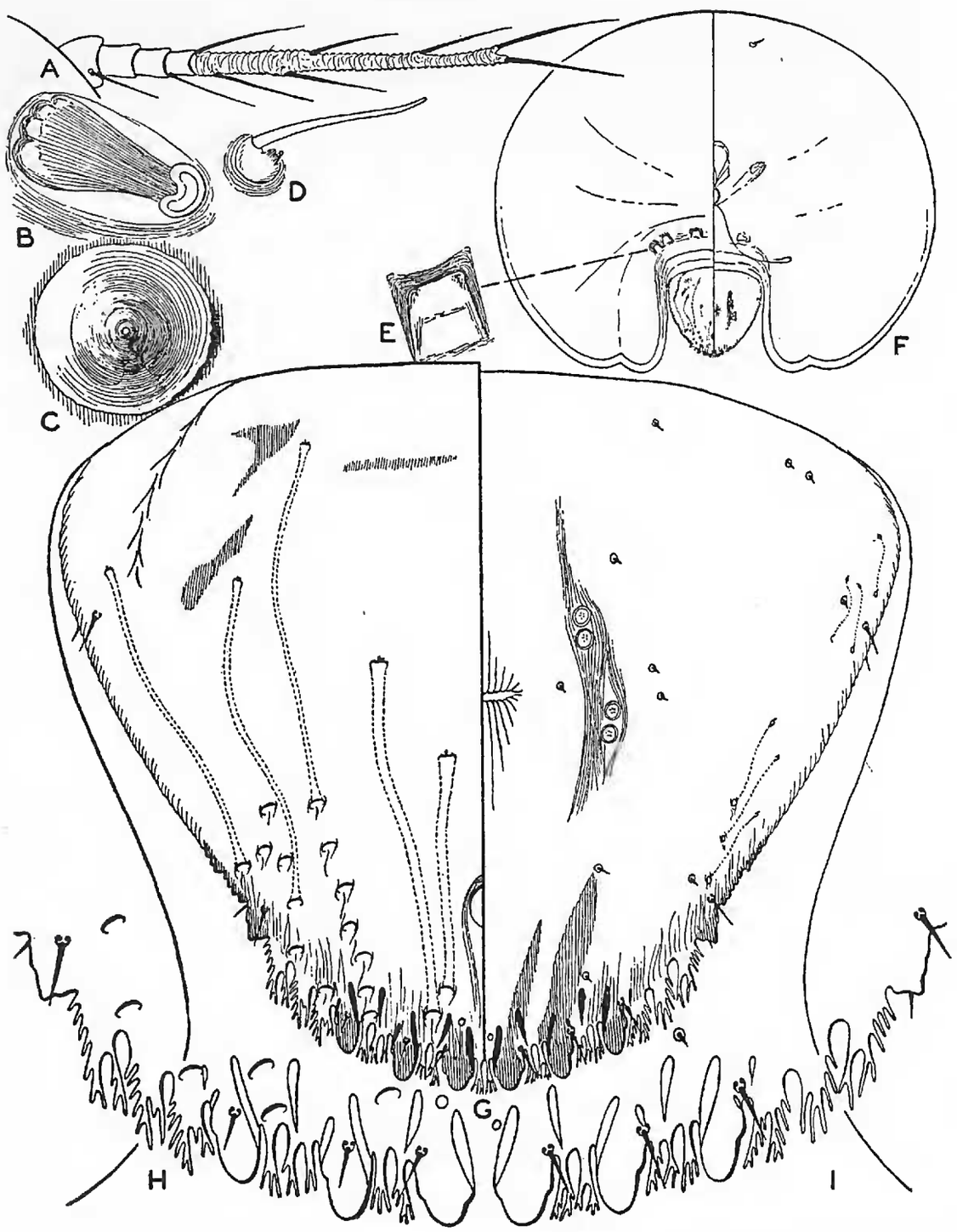
Of the species known to me this most closely resembles the false yellow scale, *Aonidiella comperei* McKenzie, from which it differs chiefly by the presence of four groups of perivulvar pores on the pygidium instead of only two groups. *Aonidiella eremocitri* n. sp. may be separated from *comperei*, *citrina*, and *orientalis*, as well as from *taxus*, and *aurantii*, by the following key:

KEY TO THE SIX SPECIES OF AONIDIELLA

1. Perivulvar pores present, ... 2
... Perivulvar pores absent, ... 3
2. Perivulvar pores in two groups, ... *comperei* McKenzie
... Perivulvar pores in four groups, ... *eremocitri* n. sp.
... Perivulvar pores in five groups, ... *orientalis* (Newst.)
3. Sclerotized structures A[3] on ventral part of pygidium present 4
Sclerotized structures A absent ..... *taxus* Leon.
4. Sclerotized structures B on ventral part of pygidium present; structure A globular, fourth lobe-like process usually inconspicuous, ... *aurantii* (Mask.)
... Sclerotized structures B absent, an irregular fold present, structure A usually narrow and elongate; fourth lobe-like process usually prominent, ... *citrina* (Coq.)

The type specimen and paratypes of this species are deposited in the U. S. National Museum, at Washington, D. C.; the remainder of the paratypes are in the Stanford University collection and the Citrus Experiment Station collection at Riverside, California.

[3] The reader is referred to item four in the bibliography where these structures are clearly illustrated and described.



AONIDIELLA EREMOCITRI n. sp.

A, antenna of first stage; B, spiracle of adult female; C, scale of female; D, antenna of adult female; E, enlargement of fenestration on body; F, general features of adult female; G, pygidium of adult female; H, dorsal aspect of detail of pygidial margin of adult female; I, ventral aspect of same.

References

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A NEW NOTONECTA FROM MEXICO

(Hemiptera-Notonectidæ)*

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Among the insects collected by Mr. Henry Thomas in Mexico during the season of 1936 there is a new species of the genus Notonecta which I describe below and name in honor of the collector.

Notonecta thomasi Hungerford, n. sp.

Size: Length 12 mm. to 13 mm.; width of pronotum, 3.9 mm. to 4.2 mm.

Color: Grayish and black, the lighter portion of the hemelytra ranging from pale smoke-gray in most of the males to light pinkish cinnamon in four of the five female in the series before me. No doubt, the gray color of the hemelytra may be orange in some specimens of the species, as is the case with *Notonecta hoffmanni* Hungerford and various other species of the subgenus Erythronecta, to which this new species belongs. The hemelytra of the males are more or less infuscated along the hemelytral suture, the clavo-corial union and the lateral half of the corium; the brownish black marginal area of the corium is broadened behind and joins the black membrane which is pale at the apex. The hemelytra of the females are infuscated only along the costal margin. Head, pronotum, and legs grayish. Scutellum black.

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